clouds (VIII.) may be taken as a good example of the difference between the present work and the usual text-book of meteorology, and yet this very chapter is more 'popular' than many in the same book. The principal cloud forms are illustrated by means of one unsatisfactory woodcut on page 642. Indeed, the illustrations are comparatively few in number, considering the size of the book. Regarding the origin of cyclones, Arrhenius says (p. 725) that since we know nothing of the vertical temperature distribution in tropical cyclones there is no argument from that standpoint against the convectional theory, as there is in the case of the extra-tropical, 'which are usually cooler at their centers than in the surrounding air.' It has been found necessary to abandon Ferrel's theory for extra-tropical cyclones, although 'it contains a great deal which fits the conditions in the case.' The Hann theory is quoted from Hann's 'Lehrbuch,' and on page 757, after referring to the investigations of Mr. H. H. Clayton on the cyclones of the United States, the author adds that, in the light of the facts now available, 'these cyclones are to be considered as belonging to an earlier stage of development than the European cyclones.' Besides referring to Mr. Clayton's work on cyclones, reference is also made to the Blue Hill kite and cloud investigations and to the results of the studies on New England thunder-storms, carried on some years ago by the New England Meteorological Society. The results obtained in the recent attempts to prevent hail-storms by means of 'weather shooting' are stated (page 805) to be very doubtful. Chapter XIV. concerns 'Meteorological Acoustics,' which is a new heading in a book on meteorology. Chapter XV. (60 pp.) is an extended discussion of 'Meteorological Optics,' a subject which is receiving much attention in Europe. Chapters XVII. and XVIII. (109 pages) treat at some length the subjects of 'Atmospheric Electricity,' and 'Auroras and Terrestrial Magnetism.'

R. DEC. W.

SCIENTIFIC JOURNALS AND ARTICLES.

The Journal of Physical Chemistry, No. 6, June. 'Adherence of Electrolytic Metal Deposits,' by C. F. Burgess and Carl Hambuechen. A paper calling attention to some of the problems of electro-plating, which should be attacked from a scientific standpoint. 'Chemical, Potential and Electromotive Force,' by Wilder D. Bancroft. A development of the work of Gibbs. 'Electrochemical Analysis and the Voltaic Series,' by J. E. Root. An experimental investigation of the relations between voltage and current in different solutions of the metals which may be determined electrolytically. From these is deduced the voltaic series in each solution used, at the temperatures of 20° and 60°. The theoretical possibilities of separation of the different metals electrolytically is discussed. No. 7, October. 'Electrolytic Copper Refining,' by F. J. Schwab and I. Baum. An interesting piece of experimental work designed to determine the best conditions of current density, temperature, etc., for the economical refining of copper. 'The Composition of the Surface Layers of Aqueous Amyl Alcohol,' by Clara C. Benson. The foam of a solution of amyl alcohol is found to be slightly more concentrated than the solution from which it is derived. The solution strength was determined by a viscosity method, depending upon an ingenious apparatus for the uniform production of drops. 'A Correction,' by Geo. H. Burrows.

The Popular Science Monthly for October opens with a paper by Franz Boas on 'The Decorative Art of the North American Indian,' which is largely devoted to showing that the idea now expressed by a given design may be something that was not intended at the outset. In 'Highways and Byways of Animal Life' Herbert F. Osborn discusses some of the peculiar adaptations of animals and the causes which have led to them. Frederick Adams Woods presents arguments and figures to show 'The Correlation Between Mental and Moral Qualities,' and under the title 'Co-operation, Coercion, Competition' Lindley M. Keasbey considers the three characteristic

systems of industrial organization. Robert E. Moritz treats of 'The Sherman Principle in Rhetoric and its Restrictions,' and Elizabeth M. Howe of 'Educational Endowments in the South,' showing how small they are, the reasons for this condition and some of the educationad needs of the southern states. J. A. Fleming presents the fifth of his series of papers on 'Hertzian Wave Wireless Telegraphy.' The number contains the index to Volume LXIII.

The American Naturalist for August contains the second paper by A. W. Grabau on 'Studies of the Gastropoda' and is devoted to *Fulgur* and *Syncotypus,* comprising an account of their development, the succession of their species in time and genetic affinities. Arthur D. Howard has a paper 'On the Structure of the Outer Segments of the Rods in the Retina of Vertebrates' and Edwin W. Doran discusses the 'Vernacular Names of Animals' and propounds a set of rules for the systematic writing of compound names.

A MONTHLY *Journal de chimie et physique* has been started at Geneva under the editorship of Professor P. A. Guye.

DISCUSSION AND CORRESPONDENCE.

THE FIFTH SATELLITE OF JUPITER.

TO THE EDITOR OF SCIENCE: Will you permit me to call attention to a misstatement in SCIENCE, on page 376, second column, undoubtedly unintentional, and at the same time easy of correction. The observations of the fifth satellite of Jupiter, made in the Department of Astronomy and Astrophysics of the University of Chicago, during the past five years, are stated to have been the only ones obtained during that period. As exceptions to this record, measures of the fifth satellite have been made by Doctor Aitken, at this Observatory, in 1898, published in A. J. No. 436; and in 1900 and 1902, published in L. O. Bull. 28; and a series in 1903, not yet published. Such an oversight can easily occur in making up an extensive report, and the credit of the excellent work done at the Yerkes Observatory is in no way diminished by the full statement of the facts.

R. H. TUCKER.

LICK OBSERVATORY,
UNIVERSITY OF CALIFORNIA.

I owe an apology to Professor Aitken for the remark regarding Jupiter's fifth satellite in President Harper's report. When, at President Harper's request, I prepared the statement on the research work of the department of Astronomy and Astrophysics, I understood that the satellite had not been observed elsewhere. There was of course no intention on my part to omit mention of the important work of Professor Aitken with the great telescope of the Lick Observatory.

GEORGE E. HALE.

INVESTIGATIONS IN PROGRESS AT THE UNIVERSITY OF CHICAGO.

THE article in your issue of September 18, under the above title, exhibits an attitude altogether too prevalent among those in authority in this country, and I think justly deserves criticism. It seems to be assumed that if a lot of investigations with high-sounding titles are being carried on at Chicago University, that institution is correspondingly great as a center of research; and that it is a matter of comparative indifference who is doing the work. "I think it best under all the circumstances not to mention in this statement the specific names of persons thus engaged. In most cases, however, the mention of the subject itself will carry with it a knowledge of the person engaged in the work." So it will, to those who happen to know, and to whom the statement is unnecessary.

There are plenty of 'researches' reported in SCIENCE and elsewhere, which are mere air-bubbles, containing nothing. We know very well that most of the work done at the University of Chicago is by no means of this character; that the university is, indeed, a great research center, an ever-flowing fountain of knowledge. But this is due to the *men* who are there, and to describe the work without mention of the workers is as though some theatrical company were to proudly an-